

WHAT IS CLAIMED IS:

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1. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:  
a housing containing ink therein, said housing having a first wall and a second wall;  
an ink supply port formed on said first wall for directing ink in said housing to the printhead;

5 and

a memory means for storing information of ink disposed on said housing and located on a central line of said ink supply port.

2. The ink cartridge according to claim 1, wherein said memory means is disposed on said first wall of said housing.

3. The ink cartridge according to claim 1, wherein said memory means is disposed on a center line of said second wall of said housing in the vicinity of said ink supply port.

4. The ink cartridge according to claim 1, wherein said housing is substantially rectangular, and said memory means is disposed on said second wall which is substantially perpendicular to said first wall, said second wall has a shorter width than the other wall of said housing.

5. The ink cartridge according to claim 1, wherein said memory means is disposed substantially in parallel with said second wall which is perpendicular to said first wall of said housing.

6. The ink cartridge according to claim 1, wherein said memory means is located at an opposite position of a fulcrum of the ink cartridge when it is mounted on or removed from the printing apparatus.

7. The ink cartridge according to claim 1, wherein said memory means is substantially rectangular and directs in a vertical orientation.

8. The ink cartridge according to claim 1, wherein said memory means is detachably mounted on said housing.

Sub  
C2

9. The ink cartridge according to claim 1, wherein said memory means comprises a positioning member.

10. The ink cartridge according to claim 9, wherein said positioning member comprises one of a notch and a through-hole which engages with a projection of said housing.

11. The ink cartridge according to claim 9, wherein said positioning member comprises a projection which engages with one of a notch and a through-hole of said housing.

Sub  
C3

12. The ink cartridge according to claim 1, wherein said housing comprises at least one rib which resiliently fits said housing with said memory means.

13. The ink cartridge according to claim 12, wherein said rib is formed in a vertical direction of said memory means.

14. The ink cartridge according to claim 12, wherein a height of said rib is higher than a plane of said memory means when said memory means is disposed on said housing.

15. The ink cartridge according to claim 1, wherein said housing is formed with a concave portion in which said memory means is accommodated.

16. The ink cartridge according to claim 1, wherein said memory means is mounted on said housing through a spring and a mounting plate.

17. The ink cartridge according to claim 15, wherein a height of walls of said concave portion surrounding said memory means is higher than that of said memory means.

18. The ink cartridge according to claim 15, wherein a plane of said memory means is aligned with a surface of a wall of said housing on which said memory means is disposed.

19. The ink cartridge according to claim 1, wherein said memory means comprises a substrate, a plurality of terminals arranged on one surface of said substrate and a storage device disposed on the other surface of said substrate.

Sub C3  
20. The ink cartridge according to claim 1, wherein said housing comprises a plurality of ink chambers for different ink, and said memory means is disposed substantially at a center of the total width of said plurality of ink chambers.

21. The ink cartridge according to claim 19, wherein said storage device is molded by ink-resistant material.

22. The ink cartridge according to claim 1, wherein said housing is formed at a predetermined position thereof with a recessed portion which engages with a member of the printing apparatus.

Sub C4  
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23. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:  
a housing containing ink therein, said housing having a first wall and a second wall;  
an ink supply port formed on said first wall for directing ink in said housing to the printhead; and  
a memory means for storing information of ink disposed on said housing and located substantially at a center of said housing in a widthwise direction thereof.

24. The ink cartridge according to claim 23, wherein said memory means is disposed on said first wall of said housing.

25. The ink cartridge according to claim 23, wherein said memory means is disposed on said second wall of said housing in the vicinity of said ink supply port.

26. The ink cartridge according to claim 23, wherein said memory means is disposed on said second wall which is perpendicular to said first wall of said housing.

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27. The ink cartridge according to claim 23, wherein said memory means is substantially rectangular, and said memory means is disposed on said second wall which is substantially perpendicular to said first wall, and said second wall has a shorter width than the other wall of said housing.

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C4

28. The ink cartridge according to claim 23, wherein said memory means is disposed substantially in parallel with said second wall which is perpendicular to said first wall of said housing.

29. The ink cartridge according to claim 23, wherein said memory means is located at an opposite position of a fulcrum of the ink cartridge when it is mounted on or removed from the printing apparatus.

30. The ink cartridge according to claim 23, wherein said memory means is substantially rectangular and directs in a vertical orientation.

31. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:  
a housing containing ink therein;  
an ink supply port formed on a wall of said housing for directing ink in said housing to the printhead; and  
a memory means for storing information of ink disposed on a wall of said housing which wall directs in parallel with a direction in which said ink supply port extends.

32. The ink cartridge according to claim 31, wherein said memory means is disposed on said housing and located on a central line of said ink supply port.

33. The ink cartridge according to claim 31, wherein said wall on which said memory means is disposed is located in the vicinity of said ink supply port.

34. The ink cartridge according to claim 33, wherein said memory means is located on a center line of said wall of said housing on which said memory means is disposed.

35. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:  
a housing containing ink therein;  
an ink supply port formed on a wall of said housing for directing ink in said housing to the printhead; and  
a memory means for storing information of ink disposed on said housing, said memory

Sub C4 means comprises a plurality of terminals at least one of which electrically connects to at least two contact members of the printing apparatus when the ink cartridge is mounted on the printing apparatus.

36. The ink cartridge according to claim 35, wherein said memory means comprises a substrate and a storage device disposed on one surface of said substrate, and said plurality of terminals are arranged on the other surface of said substrate.

37. The ink cartridge according to claim 35, wherein said memory means comprises a substrate and a storage device disposed on one surface of said substrate, and said plurality of terminals are arranged on the same surface of said substrate as said storage device.

38. The ink cartridge according to claim 35, wherein said storage device is molded by ink-resistant material.

39. The ink cartridge according to claim 35, wherein said plurality of terminals are grouped into at least a first group and a second group.

40. The ink cartridge according to claim 35, wherein said terminal which contacts to at least two contact members of the printing apparatus is a detection terminal which represents an existence of the ink cartridge mounted on the printing apparatus.

41. The ink cartridge according to claim 40, wherein said terminal which contacts to at least two contact members of the printing apparatus is located at substantially a center of the ink cartridge in the widthwise direction thereof.

42. The ink cartridge according to claim 40, wherein said terminal which contacts to at least two contact members of the printing apparatus is located on the center line of said ink supply port.

43. The ink cartridge according to claim 40, wherein said terminal which contacts to at least two contact members of the printing apparatus has an area larger than that of the other terminals.

44. The ink cartridge according to claim 40, wherein said terminal which contacts to at least two contact members of the printing apparatus is a ground electrode.

45. The ink cartridge according to claim 35, wherein said plurality of terminals come into engagement with an external control device at a time interval when the ink cartridge is mounted on the printing apparatus.

46. The ink cartridge according to claim 39, wherein said first group and second group of terminals are arranged at an interval in a direction in which the ink cartridge is mounted on the printing apparatus.

47. The ink cartridge according to claim 39, wherein said first group and second group of terminals have different height with respect to a direction in which the ink cartridge is mounted on the printing apparatus.

Sub C5  
48. The ink cartridge according to claim 35, wherein said memory means comprises six terminals each having a different function.

49. The ink cartridge according to claim 39, wherein said memory means further comprises a conducting member which connects said first group to said second group of terminals when ink is adheres across the two groups of terminals.

50. The ink cartridge according to claim 35, wherein at least one of said plurality of terminals is vertically rectangular in a direction in which the ink cartridge is mounted on the printing apparatus.

Sub C6  
51. The ink cartridge according to claim 35, wherein said memory means comprises a ground pad member for checking the content of said memory means.

52. The ink cartridge according to claim 35, wherein said plurality of terminals are distanced from an edge of said memory means.

53. The ink cartridge according to claim 35, wherein said plurality of terminals are distanced from a position where a contact member of the printing apparatus first comes into abutment when the ink cartridge is mounted on the printing apparatus.

54. The ink cartridge according to claim 35, wherein said memory means comprises at least one terminal which physically contacts a contact member of the printing apparatus.

55. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:

a housing containing ink therein, said housing having a first wall and a second wall;  
an ink supply port formed on said first wall for directing ink in said housing to the printhead;  
a memory means for storing information of ink disposed on said housing; and  
at least one overhang member protruding from a wall of said housing where said memory means is disposed.

56. The ink cartridge according to claim 55, wherein said wall on which said memory means is disposed is perpendicular to a wall of said housing where said ink supply port is formed.

57. The ink cartridge according to claim 55, wherein said memory means is located on a center line of said ink supply port.

58. The ink cartridge according to claim 55, wherein said memory means is disposed on a wall in the vicinity of said ink supply port substantially at a center position in the widthwise direction of said wall.

59. The ink cartridge according to claim 55, wherein said memory means is disposed on a side wall of said housing.

60. The ink cartridge according to claim 55, wherein said housing is substantially rectangular, and said memory means is disposed on a side wall of said housing which has a shorter width than the other side wall of said housing.

61. The ink cartridge according to claim 55, wherein said memory means is located at an opposite position of a fulcrum of the ink cartridge when it is mounted on or removed from the printing apparatus.

Sub C7  
62. The ink cartridge according to claim 55, wherein said overhang member is formed at an upper position of said memory means.

63. The ink cartridge according to claim 55, wherein said overhang member protrudes from the housing in a direction perpendicular to a plane of said memory means.

64. The ink cartridge according to claim 55, wherein said memory means, said ink supply port and said overhang member are located at the same side of the ink cartridge.

65. The ink cartridge according to claim 55, wherein the interior of said housing is divided into at least two separate chambers, and said overhang member comprises two separate overhangs which protrude from both ends in the widthwise direction of said wall on which said memory means is disposed.

66. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:  
a housing containing ink therein, said housing having a first wall and a second wall;  
an ink supply port formed on said first wall for directing ink in said housing to the printhead;  
a memory means for storing information of ink disposed on a wall said housing diagonally to have a predetermined angle with respect to said wall plane.

67. The ink cartridge according to claim 66, wherein said memory means is disposed on the same wall as said ink supply port is formed.

68. The ink cartridge according to claim 66, wherein said memory means is located on a center line of said ink supply port.

69. The ink cartridge according to claim 66, wherein said memory means is disposed substantially at a center in the widthwise direction of said wall in the vicinity of said ink supply port.

70. The ink cartridge according to claim 66, wherein said memory means is disposed on a side wall of said housing.

Sub C7  
71. The ink cartridge according to claim 66, wherein said housing is substantially rectangular, and said wall on which said memory means is disposed is a side wall having a shorter width than the other side wall of said housing.

72. The ink cartridge according to claim 66, wherein said memory means is diagonal with respect to a direction in which the ink cartridge is mounted on the printing apparatus.

73. The ink cartridge according to claim 66, wherein said memory means is diagonal with respect to a plane perpendicular to a direction in which the ink cartridge is mounted on the printing apparatus.

74. The ink cartridge according to claim 66, wherein said memory means comprises a storage device and a plurality of terminals which is grouped into at least two groups.

75. The ink cartridge according to claim 74, wherein said memory means comprises a first group of said terminals connect to said storage device and a second group of said terminals connect to contact members of the printing apparatus.

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76. The ink cartridge according to claim 74, wherein said two groups of terminals come into contact with the contact members of the printing apparatus at a time interval.

77. A memory device for storing information of ink contained in an ink cartridge for an ink jet printing apparatus, comprising:

a substrate;

5 a storage device disposed on said substrate;

a plurality of terminals for connecting said storage device to contact member of the printing apparatus, said plurality of terminals are grouped into at least a first group and a second group; and

a conducting member which connects said first group to said second group of terminals when ink is adheres across the two groups of terminals.

Sub C8  
78. An ink cartridge for an ink jet printing apparatus having a printhead which ejects ink droplets onto recording medium, the ink cartridge comprising:  
a housing containing ink therein;

5 an ink supply port formed on a wall of said housing for directing ink in said housing to the printhead; and  
a memory means for storing information of ink disposed on a wall of said housing, said memory means comprising:

a substrate;

10 a storage device disposed on said substrate;

a plurality of terminals for connecting said storage device to contact member of the printing apparatus, said plurality of terminals are grouped into at least a first group and a second group; and

15 a conducting member which connects said first group to said second group of terminals when ink is adheres across the two groups of terminals.

79. An ink jet printing apparatus, comprising:

a printhead for ejecting ink droplets onto a recording medium;

an ink container supplying ink contained therein to said printhead;

5 memory means for storing information of ink disposed at a predetermined position of said ink container;

a holder for mounting thereon said ink container at a desired position and direction, said holder comprising a lever member operatively engaging with a part of said ink container when said ink container is mounted on said holder.

80. The ink jet printing apparatus according to claim 79, wherein said ink container comprises at least one overhang member which engages with said lever member, said overhang member is formed on said ink container at an upper position of said memory means.

81. The ink cartridge according to claim 80, wherein said overhang member protrudes from said ink container in a direction perpendicular to a plane of said memory means.

82. The ink cartridge according to claim 80, wherein said memory means, said overhang member and said ink supply port are located at the same side of said ink container.

83. The ink cartridge according to claim 80, wherein said lever member comprises a projection which engages with said overhang member of said ink container.

~~28~~ 84. A contact forming device formed on an ink cartridge holder, which contacts a memory device storing information of ink contained in an ink cartridge for an ink jet printing apparatus, the contact forming device comprising:

a support member; and

- 5 a plurality of elastic contact members formed on said support, each of said contact member contacts a respective terminal of the memory device of the ink cartridge when the ink cartridge is mounted on the printing apparatus, at least two of said plurality of contact members contact a single terminal of the memory device when the ink cartridge is mounted.

~~28~~ ~~29~~ 85. An ink jet printing apparatus, comprising:  
a printhead for ejecting ink droplets onto a recording medium;  
an ink container having an ink supply port for supplying ink contained therein to said printhead;

5 and

at least one elastic member formed at a predetermined portion of the printing apparatus, said elastic member elastically engaging with said ink container when said ink container is mounted on the printing apparatus.

~~29~~ ~~30~~ 86. The printing apparatus according to claim ~~28~~ ~~29~~ 85, wherein said ink container comprises a memory device for storing information of ink disposed at a predetermined position of said ink container.

~~30~~ ~~31~~ 87. The printing apparatus according to claim ~~28~~ ~~29~~ 85, wherein said elastic member comprises two separate elastic materials disposed at different positions.

~~31~~ ~~32~~ 88. The printing apparatus according to claim ~~28~~ ~~29~~ 85, wherein said elastic member comprises a single elastic material covering a surface of said ink container substantially entirely.

~~32~~ ~~33~~ 89. The printing apparatus according to claim ~~28~~ ~~29~~ 85, wherein said elastic member comprises at least one elastic material which elastically engages with a bottom surface of said ink container.

~~33~~ ~~34~~ 90. The printing apparatus according to claim ~~28~~ ~~29~~ 85, wherein said elastic member comprises a plate spring.

~~34~~ ~~35~~ 91. The printing apparatus according to claim ~~85~~ <sup>29</sup>, wherein said elastic member comprises a porous member.

~~35~~ ~~36~~ 92. The printing apparatus according to claim ~~85~~ <sup>29</sup>, wherein said elastic member is disposed at a position confronting said ink supply port of said ink container.

~~36~~ ~~37~~ 93. The printing apparatus according to claim ~~85~~ <sup>29</sup>, wherein said elastic member comprises a first elastic material and a second elastic material disposed at an opposite side of said first elastic material.

~~37~~ ~~38~~ 94. The printing apparatus according to claim ~~85~~ <sup>29</sup>, wherein said elastic material is disposed on a lever member of an ink container holder.

95. A contact forming device attached on an ink cartridge holder of an ink cartridge for an ink jet printing apparatus, the contact forming device comprising:

5 first contact members disposed on one surface of the contact forming device, said first contact members electrically contacting a memory device which stores information of ink contained in the ink cartridge; and

second contact members disposed on the other surface of the contact forming device, said second contact members electrically contacting a part of the printing apparatus which receives information of ink.

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